

REMARKS

Claims 1, 4 and 17 are amended. Claims 1-26, as amended, remain in the application. No new matter is added by the amendments to the claims.

The Rejections:

In the Office Action dated December 29, 2006, the Examiner rejected Claims 1-10, 17 and 20 under 35 U.S.C. 102(b) as being anticipated by Suizu (US 4,592,692).

Regarding Claims 1 and 17, the Examiner stated that Suizu teaches an apparatus for handling packages W between a pickup location and a spaced destination location, comprising:

a clamshell gripper means (26,etc.) adapted to be attached to a robotic arm (5,6,7,etc.);

a first means 42 for moving said clamshell gripper means between a clamped position and an unclamped position;

a fork-type loader 22 adapted to be attached to the robotic arm;

a second means 30 for moving said fork-type loader between a pick position (conveyor 50) and an open position; and

control means (not numbered) connected to said first and second means for moving, said control means selectively operating said clamshell gripper means and said fork-type loader in independent and cooperative modes whereby said clamshell gripper means engages opposite sides of a package in said clamped position and said fork-type loader supports a bottom of the package in said pick position.

Regarding Claim 2, the Examiner stated that Suizu teaches an overhead base unit adapted to be attached to the robotic arm, said clamshell gripper means (26,etc.) and said fork-type loader 22 being mounted on said overhead base unit.

Regarding Claims 3 and 4, the Examiner stated that Suizu teaches (see figures 5-6) said clamshell gripper means further comprises a first/second side support mechanical linkage (not numbered) coupled to a first/second side support plate, said first/second side support mechanical linkage (not numbered) being pivoted about a first/second pivoting member, said first/second side support plate being adapted to engage one of the opposite sides of the package.

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Regarding Claims 5 and 20, the Examiner stated that Suizu teaches said first side support mechanical linkage and said second side support mechanical linkage are mounted to transition between said unclamped position and said clamped position in an arc-like motion.

Regarding Claim 6, the Examiner stated that Suizu teaches a base unit (not numbered, see figures 5-6), said first and second side support linkages being pivotally mounted on said base unit for movement between said unclamped and clamped positions with an arc-like motion.

Regarding Claim 7, the Examiner stated that Suizu teaches said first means 42 for moving includes a pair of pneumatic cylinders each connected to an associated one of said first and second side support linkages, said cylinders being connected to said control means for actuation.

Regarding Claim 8, the Examiner stated that Suizu teaches (see figures 5-6) said fork-type loader 22 includes at least one arm being pivotally mounted and having one end connected to said second means for moving and an opposite end, and a fork-type support member (32, etc.) attached to said at least one arm opposite end for engaging and supporting the bottom of the package W.

Regarding Claim 9, the Examiner stated that Suizu teaches said fork-type loader 22 being pivotally mounted on said base unit for movement between said pick and open positions with an arc-like motion.

Regarding Claim 10, the Examiner stated that Suizu teaches said second means 30 for moving includes a pneumatic cylinder connected to said fork-type loader, said cylinder being connected to said control means for actuation.

The Examiner rejected Claims 11-13 and 19 under 35 U.S.C. 103(a) as being unpatentable over Suizu in view of Dwyer (US 4,256,429).

Regarding Claims 11 and 19, the Examiner commented that Suizu is silent regarding a movable upper support pad. The Examiner stated that Dwyer teaches an upper support pad 112 (and third movement means 116) moveable between an engaged position for engaging an upper surface of the package and a disengaged position in order to aid package alignment, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Suizu by Dwyer to have an upper support pad moveable between an engaged position for engaging an upper surface of the package and a disengaged position in order to aid package alignment.

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Regarding Claim 12, the Examiner stated that Suizu as already modified by Dwyer teaches said upper support pad is positioned above said fork-type loader when said fork-type loader is in said pick position.

Regarding Claim 13, the Examiner stated that Suizu as already modified by Dwyer teaches a pneumatic cylinder attached to said upper support pad, said cylinder being connected to said control means for actuation.

The Examiner rejected Claims 14-16 under 35 U.S.C. 103(a) as being unpatentable over Suizu in view of Dwyer, and further in view of Borcea (US 4,741,568).

Regarding Claim 14, the Examiner commented that Suizu is silent regarding selectively limiting at least one of said unclamped position and said open position to less than a full travel. The Examiner stated that Borcea teaches (columns 1-2) soft stop means and a hard stop means connected to said control means for selectively limiting at least one of said unclamped position and said open position to less than a full travel in order to avoid interference, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Suizu by Borcea to have soft stop means and/or a hard stop means connected to said control means for selectively limiting at least one of said unclamped position and said open position to less than a full travel in order to avoid interference.

Regarding Claim 15, the Examiner stated that Suizu as already modified by Borcea teaches said soft stop means controls at least one of said first and second means for moving.

Regarding Claim 16, the Examiner stated that Suizu as already modified by Borcea teaches said hard stop means includes a stop (Borcea 17,42,etc.) for engaging one of said clamshell gripper means and said fork-type loader and a stop actuator (Borcea 17,42,etc.) connected to said control means for selectively moving said stop.

The Examiner rejected Claims 18, 21 and 22 under 35 U.S.C. 103(a) as being unpatentable over Suizu in view of Borcea. The Examiner commented that Suizu is silent regarding selectively limiting at least one of said unclamped position and said open position to less than a full travel. The Examiner stated that Borcea teaches (columns 1-2) soft stop means and a hard stop means connected to said control means for selectively limiting at least one of said unclamped position and said open position to less than a full travel in order to avoid interference, and it would have been obvious to one of ordinary skill in the art at the time the invention was

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made to have modified Suizu by Borcea to have soft stop means and/or a hard stop means connected to said control means for selectively limiting at least one of said unclamped position and said open position to less than a full travel in order to avoid interference.

The Response:

The Examiner rejected Claim 4 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because Claim 4 recites the limitation "said clamshell gripping mechanism" in line 1 and there is insufficient antecedent basis for this limitation in the claim. Applicants amended Claim 4 to overcome the rejection.

The Examiner rejected Claims 1-22 based upon Suizu as the only or the primary reference. Suizu shows a pallet loading apparatus having a package holding apparatus 20 with a plurality of scooping fork members 22. The Examiner identified the lower stage stopper plates 26 as being the "clamshell gripper means" recited in Applicants' claims.

As shown in Suizu Figs. 5 and 6, the stopper plates 26 are mounted on the lower section of each of the package line-up plates 23 so as to be swingable between a downwardly projecting operative position and a laterally outwardly projecting inoperative position. Each stopper plate 26 is supported on a separate shaft (Fig. 6) on the outside of the associated package line-up plate 23 for rotation. (Col. 4, Lines 13-18) When the packages of one stage in the pattern are lined up on the roller conveyor at the package line-up position 1, the forks 22 and the engagement rods 25 descend. (Col. 8, Lines 56-61) The sides of the packages are lined up straight by the stopper 58, the engagement rods 25 and the package line-up plates 23 on both sides. (Col. 8, Lines 61-66) As is clearly shown in Fig. 5, when the line-up plates 23 are position even when a side of a package abuts one of the line-up plates 23, the package will not abut the stopper plate 26 because the stopper plate 26 is positioned outside of the line-up plate 23 as stated above. Also, the stopper plates 26 cannot abut the packages because the bottoms of the packages are supported by the fork members 22 (shown in phantom line) adjacent the bottom edges of the line-up plates 23 and, therefore, the packages are above the stopper plates 26.

Further evidence that the stopper plates 26 are not the "clamshell gripper means" recited in Applicants' claims is that the stopper plates 26 descend to abut either the pallet or the

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packages already on the pallet when the package holding apparatus 20 moves to the pallet loading position 2 carrying a stage of packages. Thus, the stopper plates 26 never clamp on the packages being transported by the package holding apparatus 20.

Applicant amended Claims 1 and 17 to clarify that the fork-type loader supports the bottom of the package from one side only and is the sole support for the bottom of the package. Suizu supports the bottom from both sides of the package.

The Examiner stated that the prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The Examiner cited:

Berko (US 4,273,499) teaches an upper support pad and clamshell grippers.

Squires (US 5,088,783) teaches forks and clamshell grippers.

Tygard (US 5,516,255) teaches forks and clamshell grippers.

Mills (US 5,620,233) teaches adjustable gripper movement controls.

Sealberg (US 6,135,704) teaches forks and clamshell grippers.

Moilanen (US 6,176,533) teaches adjustable gripper movement controls.

Holter (US 6,305,728) teaches forks and clamshell grippers.

Applicants reviewed these references and found them to be no more pertinent than the prior art relied upon by the Examiner in the rejections.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.